

REVISIONS TO CLAIMS

1-25. (cancelled)

1 26. (previously presented) An automated method for preventing mechanical stress to a discharge
2 vessel of a discharge lamp, the method comprising using a control device to effectuate operations
3 in a lamp, the operations comprising:

- 4 - receiving an actuation indication for switching on or switching off of the lamp; and
- 5 - responsive to the actuation indication, providing control signals to coordinate cooling and
6 power to the lamp, the control signals specifying:
 - 7 ○ at least one intermediate value for the cooling or the power to the lamp or both, which
8 intermediate value is between full on and full off;
 - 9 ○ at least one timing relative to the actuation indication and associated with the
10 intermediate value; and
 - 11 ○ parameters for turning the cooling and power to the lamp full on or full off, in accordance
12 with whether the lamp is to be switched on or off, respectively.

1 27. (previously presented) The method of claim 26,
2 wherein during a time interval subsequent to the actuation indication , the control signals specify
3 - a first plurality of stepwise intermediate values for cooling between full on and full off; and
4 - a second plurality of stepwise intermediate values for lamp driver power between full on and
5 full off.

REVISIONS TO CLAIMS

1 28. (previously presented) The method of claim 27, wherein the control signals further specify a
2 plurality of timings relative to the actuation indication, each timing being associated with at least
3 one of the first and second plurality of stepwise intermediate values.

1 29. (previously presented) A control unit for controlling a lamp driver and a cooling device for a
2 discharge lamp, the control unit effectuating operations comprising:

- 3 - receiving an actuation indication for switching on or switching off of the lamp; and
- 4 - responsive to the actuation indication, providing control signals to coordinate cooling and
5 power to the lamp, the control signals specifying:
 - 6 ○ at least one intermediate value for the cooling or the power to the lamp or both, which
7 intermediate value is between full on and full off;
 - 8 ○ at least one timing relative to the actuation indication and associated with the
9 intermediate value; and
 - 10 ○ parameters for turning the cooling and power to the lamp full on or full off, in accordance
11 with whether the lamp is to be switched on or off, respectively.

1 30. (previously presented) A control unit as claimed in claim 29, comprising a microprocessor
2 unit and a memory for storing at least one switching schedule according to which the power to a
3 lamp and power to a cooling device are alternately and/or stepwise increased or decreased, in
4 accordance with whether the lamp is to be switched on or off, respectively.

1 31. (previously presented) A control unit as claimed in claim 29, which is provided for
2 - adjusting power of the cooling device as a function of the current supplied instantaneously to

REVISIONS TO CLAIMS

the lamp or as a function of power of the lamp driver, and/or

- adjusting lamp control parameters as a function of the instantaneous power of the cooling device.

32. (previously presented) A control unit as claimed in claim 29, wherein the operations comprise reducing power of the lamp and power of the cooling device stepwise, until the lamp is switching off responsive to controlled power reduction without cooling.

33. (previously presented) A control unit as claimed in claim 29, comprising

- a first input for detecting a parameter of a cooling device, which cooling device acts on the lamp, and

- a second input for detecting a lamp driver control parameter, and

wherein the control signals are to the cooling device and a lamp driver and are adjusted responsive to signals detected at the first and second inputs in such a way that there is no excursion from a predetermined range of the lamp temperature during a time interval after the actuation indication.

34. (previously presented) The control unit of claim 29, wherein a lamp driver is incorporated in the control unit.

35. (currently amended) A lamp driver for driving a discharge lamp and a cooling device for the discharge lamp, which lamp driver comprises ~~a~~at least the control unit according to claim 29.

REVISIONS TO CLAIMS

1 36. (currently amended) An assembly comprising the control unit of claim 29 and a lamp driver,
2 the lamp driver being internal or external to the control unit and comprising a trigger circuit for
3 operating the discharge lamp, wherein the control unit controls the trigger circuit and a cooling
4 device via a first and a second output, respectively.

1 37. (previously presented) An assembly as claimed in claim 36, wherein the control unit detects
2 the lamp current and/or the lamp voltage and/or the lamp power via the trigger circuit, which is
3 connected with the second input of the control unit.

38. (previously presented) A lighting unit comprising a discharge lamp, the assembly of claim
36; and the cooling device.

1 39. (currently amended) A lighting unit as claimed in claim 38, comprising a first sensor for
2 detecting a cooling power of the cooling device, which cooling power acts on the lamp, and/or a
3 second sensor for detecting a lamp temperature, wherein the control unit is provided for
4 controlling the lamp driver and the cooling device ~~by means of~~ responsive to a signal of the first
5 and/or the second sensor in such a way that there is no excursion from a predetermined range of
6 the lamp temperature during a timing interval subsequent to the actuation indication.

1 40. (previously presented) A lighting unit as claimed in claim 39, wherein the first sensor is
2 provided for detecting a property of a gas stream leaving a nozzle of the cooling device and
3 being directed onto the discharge lamp.

REVISIONS TO CLAIMS

41. (previously presented) The lighting unit of claim 40, wherein the property is pressure, volume or velocity.

42. (previously presented) A lighting unit as claimed in claim 39, wherein the second sensor is arranged on the discharge vessel of the lamp for detecting the temperature of the wall of the discharge vessel.

43. (currently amended) A projection system comprising ~~a~~at least the lighting unit according to claim 38.

44. (previously presented) A control unit (23) for controlling a lamp driver (21,22) and a cooling device (3) for a discharge lamp (1) at least during switching off of the lamp (1) in such a way that the power of the lamp (1) and the power of the cooling device (3) are alternately and/or stepwise reduced.

45. (previously presented) A control unit (23) as claimed in claim 44, comprising a microprocessor unit and a memory for storing at least one switching schedule according to which the power of the lamp (1) and the power of the cooling device (3) are alternately and/or stepwise reduced.

46. (previously presented) A control unit (23) as claimed in claim 44, which is provided for
- adjusting the power of the cooling device (3) as a function of the current supplied

REVISIONS TO CLAIMS

3 instantaneously to the lamp (1) or as a function of the lamp power, and/or

- 4 - adjusting the lamp current or the lamp power as a function of the instantaneous power of the
5 cooling device (3).

1 47. (previously presented) A control unit (23) as claimed in claim 44, which is provided for
2 reducing the power of the lamp (1) and the power of the cooling device (3) stepwise in such a
3 way that the lamp (1) is operated ultimately at reduced power without the cooling device (3).

1 48. (previously presented) A control unit (23) as claimed in claim 44, comprising

- 2 - a first input for detecting a cooling power of the cooling device (3), which cooling power acts
3 on the lamp (1), and
4 - a second input for detecting a lamp current and/or a lamp voltage and/or a lamp power,
5 wherein an output power of the lamp (1) or the lamp current and/or the cooling power of the
6 cooling device (3) can be controlled as a function of the information supplied via the first and the
7 second input at least during switching off of the lamp (1) in such a way that there is no excursion
8 from a predetermined range of the lamp temperature.

1 49. (currently amended) A lamp driver (2) for driving a discharge lamp (1) and a cooling device
2 (3) for the discharge lamp (1), which lamp driver (2) comprises ~~a~~at least the control unit (23)
3 according to claim 44.

1 50. (previously presented) A lamp driver (2) as claimed in claim 49, comprising a trigger
2 circuit (21, 22) for operating the discharge lamp (1), wherein the control unit (23) controls the

REVISIONS TO CLAIMS

trigger circuit (21, 22) and the cooling device (3) via a first and a second output, respectively.

51. (previously presented) A lamp driver (2) as claimed in claim 50, wherein the control unit (23) detects the lamp current and/or the lamp voltage and/or the lamp power via the trigger circuit (21, 22), which is connected with the second input of the control unit (23).

52. (previously presented) A lighting unit comprising a discharge lamp (1), a lamp driver (21,22), a cooling device (3) and a control unit (23) according to claim 44 for controlling the lamp driver (21,22) and the cooling device (3).

53. (currently amended) A lighting unit as claimed in claim 52, comprising

- a first sensor (33) for detecting a cooling power of the cooling device (3), which cooling power acts on the lamp (1), and/or
- a second sensor (34) for detecting a lamp temperature,

wherein the control unit (23) is provided for controlling the lamp driver (2) and the cooling device (3) ~~by means of~~ responsive to a signal of the first and/or the second sensor (33, 34) at least during switching off of the lamp (1) in such a way that there is no excursion from a predetermined range of the lamp temperature.

54. (previously presented) A lighting unit as claimed in claim 53, wherein the first sensor (33) is provided for detecting the velocity or the pressure or the volume of a gas stream leaving a nozzle (32) of the cooling device (3) and being directed onto the discharge lamp (1).

REMARKS

55. (previously presented) A projection system comprising ~~a~~at least the lighting unit according to claim 52.

56. (new) The method of claim 26 wherein the control signals are responsive to at least one stored switching schedule.

57. (new) The method of claim 56, wherein the stored switching schedule comprises stepwise and/or alternate values for power to the lamp and/or power to the cooling device.

58. (new) The method of claim 57, wherein the stored switching schedule comprises values for power to the lamp, power to the cooling device, and timing.

59. (new) The method of claim 58, wherein the values relate to switching on the lamp.

60. (new) The method of claim 58, wherein the values relate to switching off the lamp.

61. (new) The method of claim 56, wherein the stored switching schedule is chosen responsive to sensed parameters of the lamp.

62. (new) The unit of claim 30, wherein the stored switching schedule is chosen responsive to sensed parameters of the lamp.

REMARKS

63. (new) The method of claim 26, wherein the control signals for coordinating cooling power to the lamp are provided responsive to stored timing values.

64. (new) The unit of claim 29, wherein the control signals for coordinating cooling power to the lamp are provided responsive to stored timing values.

65. (new) The method of claim 26, wherein the actuation indication signals switching of a lamp switch by a user.

66. (new) The unit of claim 29, wherein the actuation indication signals switching of a lamp switch by a user.